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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,601	06/26/2003	Richard W. Gross	15060-40	5014

7590 01/29/2007

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EXAMINER	
GAKH, YELENA G	
ART UNIT	**PAPER NUMBER**
1743	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/29/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/606,601	GROSS ET AL.	
	Examiner	Art Unit	
	Yelena G. Gakh, Ph.D.	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-48* is/are pending in the application.

4a) Of the above claim(s) *19-48* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16 and 18* is/are rejected.

7)☒ Claim(s) *6,7 and 17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Amendment filed on 11/06/06 is acknowledged. Claims 1-48 are pending in the application. Claims 19-48 are withdrawn from consideration. Claims 1-18 are considered on merits.

Response to Amendment

2. In response to the amendment the examiner modifies rejection of the indicated claims under 35 U.S.C. 112, second paragraph and over the prior art.

Claim Objections

3. Claims 6 are 7 are objected to because of the following informalities: they recite "finger print" instead of the correct term "fingerprint". Appropriate correction is required.

4. Claim 17 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 17 refers to two dimensional intercept contours, which are not relevant to the subject matter of the parent claim 16.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

6. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites, "determining a sensitivity of the molecular species". It is not apparent, as to what is meant by this term in the context of the claims. Sensitivity of the species relative to what? Is this *mass spectral* sensitivity (efficiency) of different species? Is it determined relative to a standard? It is not apparent, as to how it is possible to apply "a correction factor to the sensitivity to produce the determination". What is "producing the determination"? Is it

"determining"? Also, it is not apparent, which composition is meant in the claim - is this the content of triglycerides in a biological sample? Are these different triglyceride compounds? Is this a quantitative or qualitative determination? It is further not apparent, how the step of "determining sensitivity" is related to the step of "subjecting the extract to ESI/MS/MS". There should be some relation recited in the claim (e.g. determining mass spectral sensitivity of the molecular species using a reference). Moreover, since different species are supposed to have different mass spectral sensitivities, a plural form for "sensitivity" should be used. Otherwise, it is not clear, why the correction factor is required, if all molecular species have the same mass spectral sensitivity. Also, since it appears that the correction factor is used for qualitative determination of the triglyceride species, this should be indicated in the preamble to make a direct connection between the last step of the method and the preamble.

The same is true for claim 8.

It is unclear as to how the subject matter of claim 17 is related to the recitation of claim 16, when no two-dimensional mass spectra are mentioned in claim 16.

Claim 18 is rejected under 35 U.S.C. 112, second paragraph as not reciting any elements of the kit. It is totally unclear, as to which elements the kit should comprise.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. **Claims 1-16 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Han et al. (Proc. Natl. Acad. Sci. USA, 1994) or Brügger et al. (Proc. Natl. Acad. Sci.,USA, 1997) in view of Koivusalo et al. (J. Lipid Res., 2001).

Han discloses "electrospray ionization mass spectroscopic analysis of human erythrocyte plasma membrane phospholipids" involving linear regression analysis for correcting different instrumental efficiencies for molecular species.

Brügger teaches "quantitative analysis of biological membrane lipids at the low picomole level by nano-electrospray ionization tandem mass spectrometry", including ESI-MS/MS tandem spectrometry performed directly on extracts. Calibration functions are applied as described on page 2343, right column and Figure 7.

While Han and Brügger do not specifically disclose analysis of triglycerides, triglycerides are closely related to phospholipids of cell membranes. Han and Brügger do not specifically teach applying non-linear regression analysis for determining correlation functions for correcting efficiencies (sensitivities) of different molecular species.

Koivusalo teaches "quantitative determination of phospholipid compositions by ESI-MS: effects of acyl chain length, unsaturation, and lipid concentration on instrument response [species sensitivities, Ex.]" (Title). Koivusalo indicates that linearity of the instrument response can vary depending on the phospholipids acyl chain length, and linear correction function was app;lied for low total lipid conchetraytions, and at high total lipid cocnetraypns the exponential (non-linear) regression function was indicated as better fitting the instrument response (see page 664, right column).

Therefore, it would have been obvious for any person of ordinary skill in the art to modify Han or Brügger's method using Koivusalo's results for non-linear response of ESI-MS instrument to lipids in high concentrations, for which non-linear regression fitting should be employed, because Han, Brügger and Koivusalo use analogous instruments and analytes.

Response to Arguments

11. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yelena G. Gakh, Ph.D. whose telephone number is (571) 272-1257. The examiner can normally be reached on 9:30 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

12/21/06

YELENA GAKH
PRIMARY EXAMINER